The opinion in support of the decision being entered today was **not** written for publication and is **not** precedent of the Board.

Paper No. 20

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte S.R. NARAYANAN and THOMAS VALDEZ

Appeal No. 2004-2000
Application No. 09/489,514

ON BRIEF

Before PAK, WARREN and PAWLIKOWSKI, **Administrative Patent Judges**.

PAWLIKOWSKI, **Administrative Patent Judge**.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 7-20.

Claim 7 is representative of the subject matter on appeal and is set forth below:

> 7. A process for making a catalyst ink for a fuel cell, comprising mixing, at room temperature, components comprising water, particles of a fluorocarbon polymer with a particle size of 1 to 4 microns, and a catalytic material.

The examiner relies upon the following references as evidence of unpatentability:

Samuels et al. (Samuels)	4,524,114	Jun. 18, 1985
Serpico et al. (Serpico)	5,677,074	Oct. 14, 1997
Kindler	5,992,008	Nov. 30, 1999

Dupont Zonyl Fluoroadditives Ink and Coating Guide, 1997, pp. 1-4, available at:
http://www.dupont.com/teflon/fluoroadditives/products/index.html

Claims 7-11, 13, 14, 18 and 20 stand rejected under 35 U.S.C. § 103 as being unpatentable over Serpico in view of Dupont Zonyl.

Claim 12 stands rejected under 35 U.S.C. § 103 as being unpatentable of Serpico in view of Dupont Zonyl and further in view of Kindler.

Claims 15-17 and 19 stand rejected under 35 U.S.C. § 103 as being unpatentable over Serpico in view of Dupont Zonyl and further in view of Samuels.

On page 3 of the brief, appellants state that the claims stand or fall together. To the extent that any one claim is separately argued, we will consider such claim in this appeal.

OPINION

I. The rejection of claims 7-11, 13, 14, 18 and 20 under 35 U.S.C. § 103 as being unpatentable over Serpico in view of the Dupont Zonyl reference

We consider claim 7 in this rejection.

We refer the to examiner's rejection set forth on pages 3-4 of the answer.

Beginning at the bottom of page 3 of the brief, appellants argue that Serpico teaches a broad range of particle sizes and therefore does not recognize the importance of controlling particle size within a narrow range generally, particularly with respect to the claimed range of from 1 to 4 microns.

As pointed out by the examiner, Serpico does teach particle sizes from 0.05 microns to 500 microns. Appellants' claimed range of from 1 to 4 microns falls within this disclosed range in Serpico.

We note that selecting a narrow range from within a somewhat broader range disclosed in a prior art reference is no less obvious than identifying a range that simply overlaps a disclosed range. In fact, when, as here, the claimed ranges are completely encompassed by the prior art, the conclusion is even more compelling than in cases of mere overlap. The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where, in a disclosed set of percentage ranges, is the optimum combination of percentages. See In re Boesch, 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980)("[D]iscovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art." (citations omitted)). See also In re Peterson, 315 F.3d 1325, 1329, 65 USPQ2d 1379, 1382 (Fed. Cir. 2003). Also, it has been held that where the ranges recited in a claim lie within the prior art, a prima facie case will likely exist. See In re Wertheim, 541 F.2d 257, 267, 191 USPQ 90, 100 (CCPA 1976). The burden then shifts to appellants to show that the claimed range impart more than a difference in degree to make the invention as a whole separately patentable over the prior art. Id. In view of this case law, we therefore determine, in the instant case, that appellants' claimed range

is prima facie obvious over Serpico. Because appellants have not provided evidence to show that the claimed range imparts more than a difference in degree, we affirm the rejection. Id.

II. The rejection of claim 12 under 35 U.S.C. § 103 as being obvious over Serpico in view of Dupont Zonyl and further view of Kindler

We refer to the examiner's position for this rejection on page 4 of the answer.

We observe that appellants argue that the tertiary reference does not remedy the alleged deficiencies of the Serpico and Zonyl combination. Brief, pages 4-5.

Hence, appellants set forth the same arguments for this rejection as presented for the previous rejection.

Therefore, for the same reasons, we also affirm this rejection.

III. The rejection of claims 15-17 and 19 under 35 U.S.C. § 103 as being unpatentable over Serpico in view of Dupont Zonyl and further in view of Samuels

We refer to the examiner's position for this rejection made on pages 4-5 of the answer.

Again, appellants present the same arguments for this rejection as they did with regard to the rejection of claims 7-11, 13, 14, 18 and 20, discussed, supra. Brief, pages 4-5. Therefore, for the same reasons as discussed above, we are unpersuaded by such arguments. We therefore affirm this rejection also.

IV. Conclusion

Each of the rejections is affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED

CHUNG K. PAK)
Administrative Patent Judge)
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CHARLES F. WARREN) BOARD OF PATENT
Administrative Patent Judge) APPEALS AND
) INTERFERENCES
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BEVERLY A. PAWLIKOWSKI)
Administrative Patent Judge)

BAP/sld

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DUPONT

Zonyl®

fluoroadditive

About DuPont Zonyl® Fluoroadditives

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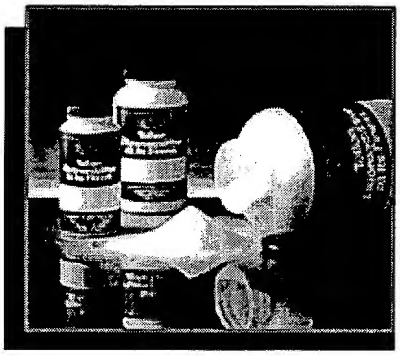
A MINOR COMPONENT -- A MAJOR ENHANCEMENT

DuPont Zonyl® fluoroadditives are finely divided white powders of polytetrafluoroethylene (PTFE) resin. They are a separate and distinctive new product line, very different from the well-known Teflon® PTFE molding and extrusion powders. The differences include:

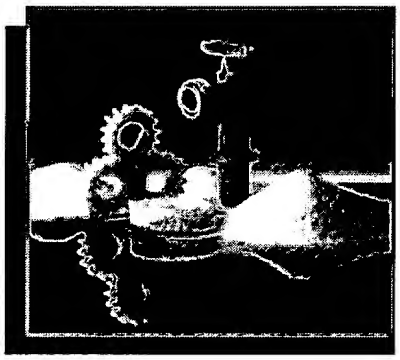
- Lower molecular weight
- Smaller particle sizes (2 to 20 μm)
- Different particle shapes and morphology

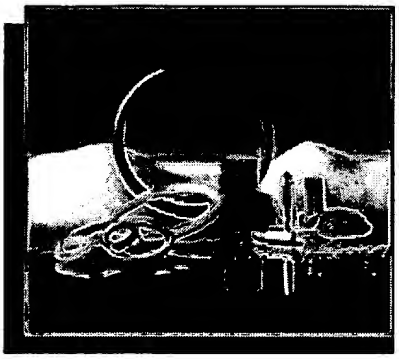


Zonyl® fluoroadditive powders are designed primarily for use as minority components in mixtures with other solid or liquid materials. Even in small quantities, they can impart some of the unusual properties of PTFE to various hosts. DuPont offers a choice of particle size and morphology to facilitate intimate mixing with dissimilar materials.

Depending on the material, Zonyl® fluoroadditives can enhance abrasion resistance, reduce coefficient of friction and mechanical wear, reduce surface contamination, and modify appearance. Zonyl® fluoroadditives also provide specific benefits to specialized products. For example, thermoplastic parts, such as gears, benefit from improved wear resistance and reduced friction. Stick-slip behavior

can be eliminated. Elastomeric seals for diverse environments improve in tear and abrasion resistance. Lithographic, flexographic, and gravure inks can be formulated for better image protection and higher productivity.





When used alone as a powder or in a paste or spray, Zonyl® fluoroadditives can be made into all-purpose solid lubricants. As a paste, for example, they can be used as high-performance sealants or as lubricants for wear surfaces in hostile environments. The powder can be dispersed in water or an organic solvent to provide another option for direct use or as an additive.

Because of their inherent low molecular weight, Zonyl® fluoroadditives are not to be used as molding or extrusion powders.

Properties Make the Additive

High melting, hydrophobic, and inert to nearly all chemicals and solvents, the basic polymer of Zonyl® fluoroadditives is PTFE. It is ideal as an additive powder because it can affect the behavior of many materials without reacting with them or contaminating their service environments.

Outstanding properties of PTFE (see Table 1), enjoyed through the use of Zonyl® fluoroadditives, can be beneficial to products made from many host materials. PTFE does not discolor or degrade in sunlight or at high temperatures. In a flame, it resists ignition and does not itself promote flame spread or significant smoke. Dielectric properties are outstanding and stable over wide ranges of temperature and frequency.

Zonyl® fluoroadditives can be used over a temperature range of -190 to +260°C (-310 to +500° F), well beyond the service temperature requirements of many materials.

Table 1*: Some Typical Properties of Polytetrafluoroethylene

Property	ASTM Method	Units	Value
Chemical and Solvent Resistance	D543	--	Excellent
Coefficient of Friction:	D1894	--	
Dynamic (<3 m/min)		--	0.1
Static (3.4 MPa)		--	0.05
Flame Rating	UL94	--	VO
Limiting Oxygen Index	D2863	%	>95
Dielectric Constant, 1 MHz	D150	--	2.1
Dissipation Factor, 1 MHz	D150	--	0.0001
Volume Resistivity	D257	Ohm · cm	10^{18}
Water Absorption, 24 h	D570	%	< 0.01
Weather Resistance	Florida Exposure	Years--No Effect	20

* These are typical values for molded plaques of high molecular weight polytetrafluoroethylene.

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